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EXAMINER

JEFFERY, JOHN A

ART UNIT PAPER NUMBER

3742

DATE MAILED: 01/13/2004

13

Please find below and/or attached an Office communication concerning this application or proceeding.

0013

Office Action Summary

Application No.

09/814,443

Applicant(s)

ANGELEY ET AL.

Examiner

John A. Jeffery

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 December 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-8 and 10-21 is/are pending in the application.
- 4a) Of the above claim(s) 20 and 21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-8 and 10-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 March 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Objections

Claims 1, 3-8, 10, and 16 are objected to because of the following informalities:

Claim 1: In subpara. (d), "continuous" is misspelled. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3, 5, 7, 8, 16, 17, and 19 are rejected under 35 USC 102(b) as being anticipated by Nanaumi (US4653495). Nanaumi (US4653495) discloses a method of delivering laser energy to tissue comprising providing a plurality of polygonal lightguides 19 and a scanning unit 13 such that the output image from the exit-face of the lightguide uniformly irradiates the tissue. See col. 5, lines 10-55 and col. 6, line 54 - col. 7, line 58. See also Figs. 6, 8, and 9. Regarding claim 3, although not expressly stated in Nanaumi (US4653495), in view of the substantial relative spacing of the square fibers in the array as shown in Fig. 9, the light exiting the individual fibers would inherently not overlap. With regard to claim 19, note col. 7, lines 33-38 in which Nanaumi (US4653495) teaches changing the sequence in which the square optical fibers are radiated.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Subject matter developed by another person, which qualifies as prior art only under subsection (f) and (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

Claims 4, 6, 10-12, 14, 15, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nanaumi (US4653495) in view of Buys et al (US5336217). The claims differ from the previously cited prior art in calling for a plurality of lenses and moving the treatment spot via relative movement between the exit-face of the lightguide and at least one lens. Providing a plurality of lenses and moving a fiber relative thereto is conventional and well known in the art as evidenced by Buys et al (US5336217) noting means for moving the optical fiber 9 relative to the lenses 12, 13 so that the treatment spot is moved. See col. 14, lines 28-38. In view of Buys et al (US5336217), it would have been obvious to one of ordinary skill in the art to move the treatment spot by moving the fiber in the previously described apparatus so that the a larger tissue treatment region was more uniformly irradiated.

Regarding claim 4, although Nanaumi (US4653495) does not disclose a rectangular or hexagonal cross-section, the reference in col. 7, lines 47-51 teaches that one of ordinary skill in the art can select a variety of polygonal fiber cross sections to

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match the desired pattern. Therefore, the specific cross section geometry is a matter of engineering design preference and do not constitute a patentably distinguishable feature of the invention. Regarding claim 6, no criticality is seen in the fiber length being less than 50mm; the selection of fiber length is therefore not a patentable feature of the invention. Regarding claim 10, although Nanaumi (US4653495) does not expressly quantify the precise level of uniformity, the reference however teaches the desirability of a uniform irradiation of laser energy onto the tissue. Moreover, no criticality is seen in the uniformity values claimed and the values do not therefore constitute a patentably distinguishable feature of the invention.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nanaumi (US4653495) in view of Buys et al (US5336217) and further in view of Trost (US5743902). The claims differ from the previously cited prior art in calling for treatment spot moving to be via a galvanometer mirror arrangement. However, the use of galvanometer mirror arrangements to move treatment spots in tissue irradiation apparatus is conventional and well known in the art as evidenced by Trost (US5743902) noting col. 5, lines 10-27 wherein galvanometers 66, 70 cause mirrors attached thereto to rotate to assist in laser scanning. In view of Trost (US5743902), it would have been obvious to one of ordinary skill in the art to provide a galvanometer mirror arrangement to assist in scanning the laser beam of the previously described apparatus so that a two-dimensional pattern can be achieved.

Response to Arguments

Applicant's arguments filed 12/16/03 have been considered but are not deemed to be persuasive.

1. Nanaumi Expressly Teaches Uniform Irradiation of Tissue

First, Applicant argues that because Nanaumi's fibers must include a cladding layer, the image projected from such fibers necessarily is narrower than the fiber's outer diameter. According to applicant, the resulting pattern from such fibers in combination must include gaps and cannot be uniform. Remarks, P. 14.

But Nanaumi nevertheless teaches emitting a uniform radiation pattern that fully reads on the amended claims. For example, Nanaumi in the sentence bridging cols. 6 and 7 notes:

The use of optical fibers each having a square section for successive scanning enables a series of radiation patterns corresponding to the shape of the square section to be formed, and ensures the uniform distribution of the optical energy of laser beams while they are conducted through these optical fibers. (emphasis added.)

Nanumi, however, does not stop there. In the next sentence, Nanumi further emphasizes uniform irradiation with his laser treatment apparatus:

The scanning of the diseased spot by laser beams radiated through said optical fibers can ensure uniform and efficient medical treatment of a large diseased spot in a shorter time than was possible with the conventional laser medical apparatus. (emphasis added.)

Nanaumi, col. 7, lines 6-10. Also, Nanaumi in col. 7 states that:

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[T]he present invention...ensures the unification of the laser beam intensity distribution in the handpiece body and provides uniform laser beam radiation of not only the individual optical fibers but also of the whole group.
(emphasis added.)

Nanaumi, col. 7, lines 52-58. In short, the claim language as amended did not preclude Nanaumi's express teaching of uniform radiation notwithstanding applicant's statements to the contrary. The limitation is therefore fully met.

2. Nanaumi Teaches Scanning the Image to Treat a Continuous Region of Tissue Greater in Area than the Treatment Spot

Applicant next argues that Nanaumi allegedly fails to teach "scanning said beam so as to treat a continuos [sic] region of the tissue, said region having an area greater than the area of the treatment-spot." But Nanaumi expressly teaches "scanning" the image projected from the apparatus to treat a large tissue region by changing the apparatus' position relative to the tissue region.

In col. 6, lines 54-55, Nanaumi states that "[a] broad diseased spot is medically treated by successively changing the position of the hand piece 21." Thus, the clear import of this passage is that the radiation issuing from the hand piece must be smaller than the tissue area to be treated to irradiate a "broad diseased spot." The limitation is therefore fully met by Nanaumi.

3. The Combination of Nanaumi With Buys and Trost under § 103(a) is Proper.

Applicant finally argues that there is no motivation to combine Buys et al ("Buys") or Trost with Nanaumi since the scanning unit 13 of Nanaumi allegedly obviates the

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need for any lens or mirror system and, according to applicant, teaches away from such optical solutions. Remarks, Page 17. But the prior art strongly suggests the desirability of such optical solutions and their use would have been obvious for the reasons stated in the rejections.

For example, the Buys reference details the practical problems associated with the Nanaumi system in the background of the patent. In col. 4, lines 27-45, Buys notes that Nanaumi's system must contact the skin which (1) increases repositioning difficulty; and (2) leads to fiber-end contamination. The system of Buys, however, overcomes such drawbacks. See also col. 6, line 51 - col. 7, line 36.

Accordingly, there is ample motivation for the skilled artisan to turn to the optical solutions of Buys and Trost to overcome the positioning difficulties of Nanaumi. The rejection is proper.

Final Rejection

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John A. Jeffery whose telephone number is (703) 306-4601. The examiner can normally be reached on Monday - Thursday from 7:00 AM to 4:30 PM. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ehud Gartenberg, can be reached on (703) 308-2634. All faxes should be sent to the centralized fax number at (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1148.


JOHN A. JEFFERY
PRIMARY EXAMINER

1/12/04